

AK

Notice of Allowability	Application No.	Applicant(s)	
	09/912,558	WEIMER ET AL.	
	Examiner	Art Unit	
	Thanhha Pham	2813	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--
 All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 07/26/2005 and interview dated 11/11/2005.
2. ☒ The allowed claim(s) is/are 13,14,16,17 and 42.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
 - * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|---------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____. |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date _____ | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____. |

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Michael Weinstein on 11/11/2005.

The application has been amended as follows:

- In claim 13,
 - line 6, after "the semiconductor substrate" insert – in a rapid thermal process chamber –
 - line 8, change "a rapid thermal process chamber" to – the rapid thermal process chamber –
 - line 9, change "the chamber" to – the rapid thermal process chamber –
 - line 10, change "said chamber" to – the rapid thermal process chamber –
 - line 11, change " said film" to – said stabilized dielectric film –
 - line 11, change "said process" to – said wet oxidation with steam process –
 - line 12, change "the chamber" to -- the rapid thermal process chamber –
 - line 15, after "said second temperature" insert – so that properties of the stabilized dielectric film are not adversely affected by the wet oxidation with steam process –
- In claim 42,

line 12, after "1 millitorr" -- ,wherein the temperature for the wet oxidation with steam process is lower than the temperature for the densifying treatment so that properties of the stabilized dielectric film are not adversely affected by the wet oxidation with steam process –

- Cancel claims 44-48

Allowable Subject Matter

2. Claims 13-14, 16-17 and 42 are allowed.

The following is an examiner's statement of reasons for allowance: Recorded Prior Art fails to disclose or suggest the combination of the process steps of fabricating a semiconductor device as recited in the base claim 13 including: subjecting said stabilized dielectric film to a wet oxidation steam process in the rapid thermal process chamber at a second temperature to raise the oxygen content of said stabilized dielectric film, said steam being carried to the rapid thermal process chamber wherein the first and second temperature to the rapid thermal process chamber is from approximately about 450°C to about 1050°C, wherein said stabilized dielectric film is subjected to said wet oxidation with steam process for a duration of about 20 seconds to about 60 seconds, wherein the ratio of steam to other gases in the rapid thermal process chamber is in the range from about 0.1 to about 0.5 and the pressure of said rapid thermal process chamber is held at about atmospheric pressure, and wherein said first temperature is greater than said second temperature so that properties of the stabilized dielectric film are not adversely affected by the wet oxidation with steam

Art Unit: 2813

process. Recorded Prior Art fails to disclose or suggest the combination of the process steps of fabricating a semiconductor device as recited in the base claim 42 including: subjecting the dielectric film to a wet oxidation steam process to raise the oxygen content of said dielectric film provided by heating a mixture of hydrogen and oxygen gases in a rapid thermal process chamber at a temperature greater than about 450°C, wherein said mixture is a ratio from 0.1 to approximately 0.80 of hydrogen gas to oxygen gas and combined in with said rapid thermal process chamber, said rapid thermal process chamber has a pressure of around 1 millitorr, wherein the temperature for the wet oxidation with steam process is lower than the temperature for the densifying treatment so that properties of the stabilized dielectric film are not adversely affected by the wet oxidation with steam process.

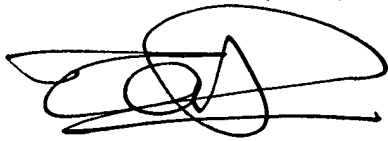
3. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thanhha Pham whose telephone number is (571) 272-1696. The examiner can normally be reached on Monday and Thursday 9:00AM - 9:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl Whitehead can be reached on (571) 272-1702. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2813

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, consisting of several loops and a long horizontal stroke at the end.

Thanhha Pham
Patent Examiner